## IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended) An information recording apparatus for recording information on a predetermined recording medium, said information recording apparatus comprising:

creation means for creating search data from main image data; and

recording means for recording said search data created by said creation means and said main image data on said recording medium,

wherein said creation means creates first data by which an image can be displayed over an one-entire one-screen, and second data for enhancing the image quality of said image displayed by said first data, each being used as said search data, and said recording means records said first data and sequentially followed on the recording medium by said second data in a predetermined sequence,

wherein the first data includes three macro blocks including a first macro block such that of discrete cosine components are extracted from a first luminance signal of a discrete cosine transform block, a second macro block such that of discrete cosine components are extracted from a first color-difference signal. of a discrete cosine transform block and a third macro block such that of discrete cosine components are extracted from a second color-difference signal of a discrete cosine transform block, and

wherein the second data includes three macro blocks ~~such that~~ of discrete cosine

components ~~are~~ extracted from each of three luminance signals ~~of a discrete cosine transform~~

~~blocks.~~ the three luminance signals and the first luminance signal are portions of a main

luminance signal.


2. (Original)    An information recording apparatus according to claim 1, wherein

said recording means records said second data after said first data is recorded.


3. (Original)    An information recording apparatus according to claim 1, wherein

said creation means creates each of said first data and said second data in such a manner so as to

be divided into a plurality of portions in predetermined units.


4. (Original)    An information recording apparatus according to claim 3, wherein

said predetermined units are units of blocks in which error checking is performed.


5. (Original)    An information recording apparatus according to claim 3, wherein

said creation means creates said second data corresponding to the central portion of one screen of

said image, and at least one piece of said second data corresponding to a portion which is outside

the central portion, and said recording means records a plurality of pieces of said second data in a

sequence from the data corresponding to the central portion of one screen of said image to the

data corresponding to a portion outside the central portion.

6. (Original)    An information recording apparatus according to claim 3, wherein said recording means records said first data in said predetermined units in such a manner as to be obtained by one trace during reading.

7. (Original)    An information recording apparatus according to claim 1, wherein said search data is composed of image data and control data, said control data has a packet structure in which a search header and subcode data which is the same as said main image data are written in such a manner so as to be divided, and the packet header of said packet structure indicates which data is written in said control data.

8. (Currently Amended)    An information recording method for use with an information recording apparatus for recording information on a predetermined recording medium, said information recording method comprising:

a creation step for creating search data from main image data; and

a recording step for recording said search data created in said creation step and said main image data on said recording medium,

wherein, in said creation step, first data by which an image can be displayed over ~~one~~ an entire screen and second data for enhancing the image quality of said image displayed by said first data, each being used as said search data, are created, and in said recording step, said first data ~~and~~ sequentially followed on the recording medium by said second data are recorded ~~in a predetermined sequence~~,

wherein the first data includes ~~three macro blocks including~~ a first macro block ~~such that~~ of discrete cosine components ~~are~~ extracted from a first luminance signal ~~of a discrete cosine~~

transform block, a second macro block such that of discrete cosine components are extracted

from a first color-difference signal. of a discrete cosine transform block and a macro block such

that of discrete cosine components are extracted from a second color-difference signal of a

discrete cosine transform block, and

wherein the second data includes three macro blocks such that of discrete cosine

components are extracted from each of three luminance signals of a discrete cosine transform

blocks. the three luminance signals and the first luminance signal are portions of a main

luminance signal.

9.  (Currently Amended)          A recording medium having recorded thereon a

computer-readable program for use with an information recording apparatus for reading

information on a predetermined recording medium, said program comprising:

a creation step for creating search data from main image data; and

a recording step for recording said search data created in said creation step and said main

image data on said recording medium,

wherein, in said creation step, first data by which an image can be displayed over one an

entire screen and second data for enhancing the image quality of said image displayed by said

first data, each being used as said search data, are created, and in said recording step, said first

data and sequentially followed on the recording medium by said second data are recorded in a

predetermined sequence,

wherein the first data includes three macro blocks including a first macro block such that

of discrete cosine components are extracted from a first luminance signal of a discrete cosine

transform block, a second macro block such that of discrete cosine components are extracted

from a first color-difference signal, ~~of a discrete cosine transform block~~ and a macro block ~~such that~~ of discrete cosine components ~~are~~ extracted from a second color-difference signal ~~of a discrete cosine transform block~~, and

wherein the second data includes three macro blocks ~~such that~~ of discrete cosine components ~~are~~ extracted from each of three luminance signals ~~of a discrete cosine transform blocks~~, the three luminance signals and the first luminance signal are portions of a main luminance signal.

10. (Currently Amended) An information reading apparatus for reading information recorded on a predetermined recording medium, said information reading apparatus comprising:

acquiring means for acquiring search data, which is composed of image data and control data, recorded on said recording medium; and

display control means for controlling the display position of said image data on the basis of coordinate information contained in said control data,

wherein the image data comprises:

first data having three macro blocks including a first macro block ~~such that~~ of discrete cosine components ~~are~~ extracted from a first luminance signal ~~of a discrete cosine transform block~~, a second macro block ~~such that~~ of discrete cosine components ~~are~~ extracted from a first color-difference signal, ~~of a discrete cosine transform block~~ and a third macro block ~~such that~~ of discrete cosine components ~~are~~ extracted from a second color-difference signal ~~of a discrete cosine transform block~~, and

second data, recorded sequentially after the first data, having three macro blocks

~~such that~~ of discrete cosine components ~~are~~ extracted from each of three luminance

signals ~~of a discrete cosine transform blocks,~~ the three luminance signals and the first

luminance signals are portions of a main luminance signal.

11. (Original)     An information reading apparatus according to claim 10, further

comprising interpolation means for interpolating a display image by using said search data

obtained by said acquiring means when said search data obtained by said acquiring means is less

than the required amount of data for one screen of the display image.

12. (Currently Amended)     An information reading method for use with an

information reading apparatus for reading information recorded on a predetermined recording

medium, said information reading method comprising:

an acquiring step for acquiring search data, which is composed of image data and control

data, recorded on said recording medium; and

a display control step for controlling a display position of said image data on the basis of

coordinate information contained in said control data,

wherein the image data comprises:

first data having three macro blocks including a first macro block ~~such that~~ of

discrete cosine components ~~are~~ extracted from a first luminance signal ~~of a discrete~~

~~cosine transform block,~~ a second macro block ~~such that~~ of discrete cosine components ~~are~~

extracted from a first color-difference signal, ~~of a discrete cosine transform block~~ and a

third macro block such that of discrete cosine components are extracted from a second

color-difference signal of a discrete cosine transform block, and

second data, recorded sequentially after the first data, having three macro blocks

such that of discrete cosine components are extracted from each of three luminance

signals of a discrete cosine transform blocks, the three luminance signals and the first

luminance signals are portions of a main luminance signal.


13.  (Currently Amended)         A recording medium having recorded thereon a

computer-readable program for use in an information reading apparatus for reading information

recorded on a predetermined recording medium, said program comprising:

an acquiring step for acquiring search data, which is composed of image data and control

data, recorded on said recording medium; and

a display control step for controlling a display position of said image data on the basis of

coordinate information contained in said control data,

wherein the image data comprises:

first data having three macro blocks including a first macro block such that of

discrete cosine components are extracted from a first luminance signal of a discrete

cosine transform block, a second macro block such that of discrete cosine components are

extracted from a first color-difference signal, of a discrete cosine transform block and a

third macro block such that of discrete cosine components are extracted from a second

color-difference signal of a discrete cosine transform block, and

second data, recorded sequentially after the first data, having three macro blocks

such that of discrete cosine components are extracted from each of three luminance

signals of a discrete cosine transform blocks, the three luminance signals and the first

luminance signals are portions of a main luminance signal.

14. – 20. (Canceled)

21. (Currently Amended)        An information recording apparatus for recording

information on a predetermined recording medium, said information recording apparatus

comprising:

creation means for creating search data from main image data; and

recording means for recording said search data created by said creation means and said

main image data on said recording medium,

wherein said creation means creates first data by which an image can be displayed over

an one entire one screen, and second data for enhancing the image quality of said image

displayed by said first data, each being used as said search data, and said recording means

records said first data and sequentially followed on the recording medium by said second data in

a predetermined sequence,

wherein the search data for nine traces of the recording medium are arranged across 144

tracks separated into four traces of first data and sequentially followed on the recording medium

by five traces of second data of five traces,

wherein the first data includes a first macro block of discrete cosine components are

extracted from a first luminance signal, a second macro block of discrete cosine components are

extracted from a first color-difference signal, and a third macro block of discrete cosine

components are extracted from a second color-difference signal, and

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wherein the second data includes three macro blocks of discrete cosine components

extracted from each of three luminance signals, wherein the three luminance signals and the first

luminance signal are portions of a main luminance signal.

22. (Previously Presented) An information recording apparatus according to claim 21, wherein said recording means records said second data after said first data is recorded.

23. (Previously Presented) An information recording apparatus according to claim 21, wherein said creation means creates each of said first data and said second data in such a manner so as to be divided into a plurality of portions in predetermined units.

24. (Previously Presented) An information recording apparatus according to claim 23, wherein said predetermined units are units of blocks in which error checking is performed.

25. (Previously Presented) An information recording apparatus according to claim 23, wherein said creation means creates said second data corresponding to the central portion of one screen of said image, and at least one piece of said second data corresponding to a portion which is outside the central portion, and said recording means records a plurality of pieces of said second data in a sequence from the data corresponding to the central portion of one screen of said image to the data corresponding to a portion outside the central portion.

26. (Previously Presented)       An information recording apparatus according to claim 23, wherein said recording means records said first data in said predetermined units in such a manner as to be obtained by one trace during reading.

27. (Previously Presented)       An information recording apparatus according to claim 21, wherein said search data is composed of image data and control data, said control data has a packet structure in which a search header and subcode data which is the same as said main image data are written in such a manner so as to be divided, and the packet header of said packet structure indicates which data is written in said control data.

28. (Currently Amended)       An information recording method for use with an information recording apparatus for recording information on a predetermined recording medium, said information recording method comprising:

a creation step for creating search data from main image data; and

a recording step for recording said search data created in said creation step and said main image data on said recording medium,

wherein, in said creation step, first data by which an image can be displayed over one an entire screen and second data for enhancing the image quality of said image displayed by said first data, each being used as said search data, are created, and in said recording step, said first data and sequentially followed on the recording medium by said second data are recorded in a predetermined sequence,

wherein the search data for nine traces of the recording medium are arranged across 144

tracks separated into four traces of first data ~~and~~ sequentially followed on the recording medium

by five traces of second data ~~of five traces.~~

wherein the first data includes a first macro block of discrete cosine components are

extracted from a first luminance signal, a second macro block of discrete cosine components are

extracted from a first color-difference signal, and a third macro block of discrete cosine

components are extracted from a second color-difference signal, and

wherein the second data includes three macro blocks of discrete cosine components

extracted from each of three luminance signals, wherein the three luminance signals and the first

luminance signal are portions of a main luminance signal.


29.  (Currently Amended)        A recording medium having recorded thereon a

computer-readable program for use with an information recording apparatus for reading

information on a predetermined recording medium, said program comprising:

a creation step for creating search data from main image data; and

a recording step for recording said search data created in said creation step and said main

image data on said recording medium,

wherein, in said creation step, first data by which an image can be displayed over ~~one~~ an

entire screen and second data for enhancing the image quality of said image displayed by said

first data, each being used as said search data, are created, and in said recording step, said first

data ~~and~~ sequentially followed on the recording medium by said second data ~~are recorded in a~~

~~predetermined sequence,~~

wherein the search data for nine traces of the recording medium are arranged across 144

tracks separated into four traces of first data ~~and~~ sequentially followed on the recording medium

by five traces of second data ~~of five traces,~~

wherein the first data includes a first macro block of discrete cosine components are

extracted from a first luminance signal, a second macro block of discrete cosine components are

extracted from a first color-difference signal, and a third macro block of discrete cosine

components are extracted from a second color-difference signal, and

wherein the second data includes three macro blocks of discrete cosine components

extracted from each of three luminance signals, wherein the three luminance signals and the first

luminance signal are portions of a main luminance signal.

30.  (Currently Amended)          An information reading apparatus for reading

information recorded on a predetermined recording medium, said information reading apparatus

comprising:

acquiring means for acquiring search data, which is composed of image data and control

data, recorded on said recording medium; and

display control means for controlling the display position of said image data on the basis

of coordinate information contained in said control data,

wherein the image data for nine traces of the recording medium are arranged across 144

tracks separated into four traces of first data ~~and~~ sequentially followed on the recording medium

by five traces of second data ~~of five traces,~~

wherein the first data includes a first macro block of discrete cosine components are

extracted from a first luminance signal, a second macro block of discrete cosine components are

extracted from a first color-difference signal, and a third macro block of discrete cosine

components are extracted from a second color-difference signal, and

wherein the second data includes three macro blocks of discrete cosine components

extracted from each of three luminance signals, wherein the three luminance signals and the first

luminance signal are portions of a main luminance signal.

31.  (Previously Presented)        An information reading apparatus according to

claim 30, further comprising interpolation means for interpolating a display image by using said

search data obtained by said acquiring means when said search data obtained by said acquiring

means is less than the required amount of data for one screen of the display image.

32.  (Currently Amended)        An information reading method for use with an

information reading apparatus for reading information recorded on a predetermined recording

medium, said information reading method comprising:

an acquiring step for acquiring search data, which is composed of image data and control

data, recorded on said recording medium; and

a display control step for controlling a display position of said image data on the basis of

coordinate information contained in said control data,

wherein the image data for nine traces of the recording medium are arranged across 144

tracks separated into four traces of first data and-sequentially followed on the recording medium

by five traces of second data-of five traces.

wherein the first data includes a first macro block of discrete cosine components are

extracted from a first luminance signal, a second macro block of discrete cosine components are

extracted from a first color-difference signal, and a third macro block of discrete cosine

components are extracted from a second color-difference signal, and

wherein the second data includes three macro blocks of discrete cosine components

extracted from each of three luminance signals, wherein the three luminance signals and the first

luminance signal are portions of a main luminance signal.

33.  (Currently Amended)          A recording medium having recorded thereon a

computer-readable program for use in an information reading apparatus for reading information

recorded on a predetermined recording medium, said program comprising:

an acquiring step for acquiring search data, which is composed of image data and control

data, recorded on said recording medium; and

a display control step for controlling a display position of said image data on the basis of

coordinate information contained in said control data,

wherein the image data for nine traces of the recording medium are arranged across 144

tracks separated into four traces of first data ~~and~~ sequentially followed on the recording medium

by five traces of second data ~~of five traces~~.

wherein the first data includes a first macro block of discrete cosine components are

extracted from a first luminance signal, a second macro block of discrete cosine components are

extracted from a first color-difference signal, and a third macro block of discrete cosine

components are extracted from a second color-difference signal, and

wherein the second data includes three macro blocks of discrete cosine components

extracted from each of three luminance signals, wherein the three luminance signals and the first

luminance signal are portions of a main luminance signal.

34.  (Currently Amended)          An information recording apparatus for recording

information on a predetermined recording medium, said information recording apparatus

comprising:

creation means for creating search data from main image data; and

recording means for recording said search data created by said creation means and said

main image data on said recording medium,

wherein said creation means creates first data by which an image can be displayed over

an ~~one~~ entire ~~one~~ screen, and second data for enhancing the image quality of said image

displayed by said first data, each being used as said search data, and said recording means

records said first data ~~and~~ sequentially followed on the recording medium by said second data ~~in~~

~~a predetermined sequence~~,

wherein the first data includes a first macro block of discrete cosine components

extracted from a first luminance signal, a second macro block of discrete cosine components

extracted from a first color-difference signal, and a third macro block of discrete cosine

components extracted from a second color-difference signal, and

wherein the second data includes three macro blocks of discrete cosine components

extracted from each of three luminance signals, wherein the three luminance signals and the first

luminance signal are portions of a main luminance signal,

wherein a sync block of a sync block header of the recording medium includes macro

blocks that correspond with the image displayed such that macro blocks of the first data are

mapped to the display image, left to right, from an X address of a start macro block ~~within the~~

~~sync block~~ and a Y address of the start macro block ~~within the sync block of a sync block header~~,

and

wherein the sync block header includes a picture class ID to indicate whether the search data is first data or second data.


35. (Previously Presented) An information recording apparatus according to claim 34, wherein said recording means records said second data after said first data is recorded.


36. (Previously Presented) An information recording apparatus according to claim 34, wherein said creation means creates each of said first data and said second data in such a manner so as to be divided into a plurality of portions in predetermined units.


37. (Previously Presented) An information recording apparatus according to claim 36, wherein said predetermined units are units of blocks in which error checking is performed.


38. (Previously Presented) An information recording apparatus according to claim 36, wherein said creation means creates said second data corresponding to the central portion of one screen of said image, and at least one piece of said second data corresponding to a portion which is outside the central portion, and said recording means records a plurality of pieces of said second data in a sequence from the data corresponding to the central portion of one screen of said image to the data corresponding to a portion outside the central portion.

39.  (Previously Presented)        An information recording apparatus according to

claim 36, wherein said recording means records said first data in said predetermined units in such

a manner as to be obtained by one trace during reading.


40.  (Previously Presented)        An information recording apparatus according to

claim 34, wherein said search data is composed of image data and control data, said control data

has a packet structure in which a search header and subcode data which is the same as said main

image data are written in such a manner so as to be divided, and the packet header of said packet

structure indicates which data is written in said control data.


41.  (Currently Amended)        An information recording method for use with an

information recording apparatus for recording information on a predetermined recording

medium, said information recording method comprising:

a creation step for creating search data from main image data; and

a recording step for recording said search data created in said creation step and said main

image data on said recording medium,

wherein, in said creation step, first data by which an image can be displayed over ~~one~~ an

entire screen and second data for enhancing the image quality of said image displayed by said

first data, each being used as said search data, are created, and in said recording step, said first

data ~~and~~ sequentially followed on the recording medium by said second data ~~are recorded in a~~

~~predetermined sequence,~~

wherein the first data includes a first macro block of discrete cosine components

extracted from a first luminance signal. a second macro block of discrete cosine components

extracted from a first color-difference signal, and a third macro block of discrete cosine

components extracted from a second color-difference signal, and

wherein the second data includes three macro blocks of discrete cosine components

extracted from each of three luminance signals, wherein the three luminance signals and the first

luminance signal are portions of a main luminance signal,

wherein a sync block of a sync block header of the recording medium includes macro

blocks that correspond with the image displayed such that macro blocks of the first data are

mapped to the display image, left to right, from an X address of a start macro block within the

sync block and a Y address of the start macro block within the sync block of a sync block header,

and

wherein the sync block header includes a picture class ID to indicate whether the search

data is first data or second data.


42.  (Currently Amended)          A recording medium having recorded thereon a

computer-readable program for use with an information recording apparatus for reading

information on a predetermined recording medium, said program comprising:

a creation step for creating search data from main image data; and

a recording step for recording said search data created in said creation step and said main

image data on said recording medium,

wherein, in said creation step, first data by which an image can be displayed over one an

entire screen and second data for enhancing the image quality of said image displayed by said

first data, each being used as said search data, are created, and in said recording step, said first

data ~~and~~ <u>sequentially followed on the recording medium by</u> said second data ~~are recorded in a~~

~~predetermined sequence,~~

<u>wherein the first data includes a first macro block of discrete cosine components</u>

<u>extracted from a first luminance signal, a second macro block of discrete cosine components</u>

<u>extracted from a first color-difference signal, and a third macro block of discrete cosine</u>

<u>components extracted from a second color-difference signal, and</u>

<u>wherein the second data includes three macro blocks of discrete cosine components</u>

<u>extracted from each of three luminance signals, wherein the three luminance signals and the first</u>

<u>luminance signal are portions of a main luminance signal,</u>

wherein a sync block <u>of a sync block header</u> of the recording medium includes macro

blocks that correspond with the image displayed such that macro blocks of the first data are

mapped to the display image, left to right, from an X address of a start macro block ~~within the~~

~~sync block~~ and a Y address of the start macro block ~~within the sync block of a sync block header~~,

and

wherein the sync block header includes a picture class ID to indicate whether the search

data is first data or second data.


43. (Currently Amended)    An information reading apparatus for reading

information recorded on a predetermined recording medium, said information reading apparatus

comprising:

acquiring means for acquiring search data, which is composed of image data and control

data, recorded on said recording medium; and

display control means for controlling the display position of said image data on the basis

of coordinate information contained in said control data,

wherein said image data of said search data comprises first data sequentially followed on

the recording medium by second data,

wherein the first data includes a first macro block of discrete cosine components

extracted from a first luminance signal, a second macro block of discrete cosine components

extracted from a first color-difference signal, and a third macro block of discrete cosine

components extracted from a second color-difference signal, and

wherein the second data includes three macro blocks of discrete cosine components

extracted from each of three luminance signals, wherein the three luminance signals and the first

luminance signal are portions of a main luminance signal,

wherein a sync block of a sync block header of the recording medium includes macro

blocks that correspond with the image displayed such that macro blocks of the first data are

mapped to the display image, left to right, from an X address of a start macro block ~~within the~~

~~sync block~~ and a Y address of the start macro block ~~within the sync block of a sync block header~~,

and

wherein the sync block header includes a picture class ID to indicate whether the search

data is first data or second data.


44.   (Previously Presented)        An information reading apparatus according to

claim 43, further comprising interpolation means for interpolating a display image by using said

search data obtained by said acquiring means when said search data obtained by said acquiring

means is less than the required amount of data for one screen of the display image.

45.  (Currently Amended)          An information reading method for use with an information reading apparatus for reading information recorded on a predetermined recording medium, said information reading method comprising:

an acquiring step for acquiring search data, which is composed of image data and control data, recorded on said recording medium; and

a display control step for controlling a display position of said image data on the basis of coordinate information contained in said control data,

wherein said image data of said search data comprises first data sequentially followed on the recording medium by second data,

wherein the first data includes a first macro block of discrete cosine components extracted from a first luminance signal, a second macro block of discrete cosine components extracted from a first color-difference signal, and a third macro block of discrete cosine components extracted from a second color-difference signal, and

wherein the second data includes three macro blocks of discrete cosine components extracted from each of three luminance signals, wherein the three luminance signals and the first luminance signal are portions of a main luminance signal,

wherein a sync block of a sync block header of the recording medium includes macro blocks that correspond with the image displayed such that macro blocks of the first data are mapped to the display image, left to right, from an X address of a start macro block within the sync block and a Y address of the start macro block within the sync block of a sync block header, and

wherein the sync block header includes a picture class ID to indicate whether the search

data is first data or second data.


46. (Currently Amended) A recording medium having recorded thereon a

computer-readable program for use in an information reading apparatus for reading information

recorded on a predetermined recording medium, said program comprising:

an acquiring step for acquiring search data, which is composed of image data and control

data, recorded on said recording medium; and

a display control step for controlling a display position of said image data on the basis of

coordinate information contained in said control data,

wherein said image data of said search data comprises first data sequentially followed on

the recording medium by second data,

wherein the first data includes a first macro block of discrete cosine components

extracted from a first luminance signal, a second macro block of discrete cosine components

extracted from a first color-difference signal, and a third macro block of discrete cosine

components extracted from a second color-difference signal, and

wherein the second data includes three macro blocks of discrete cosine components

extracted from each of three luminance signals, wherein the three luminance signals and the first

luminance signal are portions of a main luminance signal,

wherein a sync block of a sync block header of the recording medium includes macro

blocks that correspond with the image displayed such that macro blocks of the first data are

mapped to the display image, left to right, from an X address of a start macro block within the

sync block and a Y address of the start macro block within the sync block of a sync block header,
and

wherein the sync block header includes a picture class ID to indicate whether the search
data is first data or second data.

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